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ABSTRACT

Both writing and critical thinking are based in context; students write and think best about subjects in which they are knowledgeable. Neither can therefore be regarded as a generic basic skill. Linear conceptions of learning which permeate both informal and formal views of education, writing, and critical thinking set students up for failure. Standards of correctness in writing vary genre to genre, discipline to discipline. Knowledge, writing, and thinking are socially constructed; in the academic situation they are socially constructed by disciplines. A good writing program reflects the different kinds of writing that students do in the disciplines. Teaching writing in the disciplines requires consideration of the following guidelines: novice writers need explicit instruction in what it means to write in particular disciplines; most students do not reach a voice that is fully socialized in the discipline, and therefore teachers must decide which disciplinary conventions constitute thinking in the discipline in question and which do not; students who do become socialized into a discipline need to be pushed toward the meta-cognitive stance that characterizes critical thinking; and once students have become socialized into one or more disciplines, they can then make use of explicit instruction in the abstract grammar that governs the texts they have learned to produce. (Contains 33 references.) (IAH)

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Disciplinary "Secrets" and the Apprentice Writer: The Lessons for Critical Thinking

Gregory Colomb

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The Institute for Critical Thinking at Montclair State College is designed to support and enrich faculty development efforts toward critical thinking as an educational goal. Guided by a National Advisory Board and a College Advisory Council, its primary purpose is to serve as a catalyst in the development of educational excellence across the curriculum at the College. A collaborative, multi-disciplinary approach is in process, with attention to the study of both the theoretical aspects of critical thinking across the disciplines and their implications for teaching and learning at the college level. Leadership roles have also been assumed in helping other colleges and schools to incorporate critical thinking into their curricula.

As part of this effort, the Institute for Critical Thinking publishes a newsletter, *Critical Thinking: Inquiry Across the Disciplines*, on a monthly basis during the academic year. The newsletter publishes information about the activities of the Institute, as well as brief analyses of various critical thinking issues. In addition, the publication of several series of resource documents are in process. These publications will make available, to interested faculty and others at Montclair and elsewhere, working papers related to critical thinking as an educational goal. These publications will enable those persons interested in critical thinking to have access to more extensive discussions of the kinds of issues that can only be presented in summary form in the newsletter. These discussions will typically be regarded as works-in-progress--articles written as tentative arguments inviting response from others, articles awaiting the long publication delay in journals, etc. The proceedings of our conferences will also be presented in the form of resource publications, as will articles based on our series of lectures, inquiry panels, and faculty seminars and forums.

In this first series of resource publications, we have included working papers by members and guests of our Institute Fellows "Round Table." Most of these working papers have been presented for discussion at one or more of the Fellows' seminar meetings, and have influenced our thinking about the nature of critical thinking as an educational goal.

The Institute welcomes suggestions for our resource publication series, as well as for our other activities. Correspondence may be addressed to us at

Institute for Critical Thinking
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Disciplinary "Secrets" and the Apprentice Writer: The Lessons for Critical Thinking

Gregory G. Colomb

As I prepared to speak to you today, deciding how to explain why a linguist and literary critic should address an Institute on Critical Thinking, I found myself a little at a loss. *Critical thinking* is a term so much bandied about lately that it's not always clear to me just what it means. Precise definitions are hard to come by, and imprecise ones equate critical thinking to everything from a general disposition to question authorities and their assumptions to "*real* thinking," the only thinking worthy of the name. Nothing in my training led me to expect to be in a position to speak on the topic of critical thinking: certainly, it has never been a central concern either of linguistics or of literary studies. Instead, the issues of critical thinking and learning that I will discuss today have more pursued me than I them. They have forced themselves on me while I was looking to other goals — trying to understand the grammar of text structures or designing and teaching in a variety of writing programs, first for the University of Chicago's liberal arts college, then for its professional schools, then for a post-graduate professional college, then as an advisor for a group of colleges and universities, and now for an engineering institute. While it should hardly surprise that writing and thinking are intertwined, I have come to find something important in the way critical thinking keeps cropping up in each new pedagogical corner. For thinking about the so-called "generic" skills such as thinking, reading, and writing raises issues that force us to think in turn about all the disciplines, right across the academy — issues that make it clear that these generic skills are not so generic after all.

To learn this, we needed only to have asked our students. In fact, so clear to students is the fact that writing and thinking change across the academy, that the wonder is how faculty could have been brought to think otherwise.[1] Let me begin with a story of how one of my students encountered the differences in writing for different disciplines, an

[1] Although I have often discussed the nature of the changes in grammar across disciplines with faculty (chiefly at the University of Chicago's bi-annual Institutes on Teaching and Learning), I did not survey students. Only recently have researchers begun to collect reports from students. Ruth Barton (1988), surveyed both faculty and students at Colorado College, asking whether they perceived any significant differences in writing in different disciplines. The faculty were uniform in their quick and confident responses that there were no differences. The students, including those students who served as peer tutors, were equally quick to say that the differences were, if not overwhelming, then at least great. Lucille McCarthy (1988) chronicles the experience of a single student as he makes his way through the curriculum of a liberal arts college. Also see Herrington (1985).

experience that was, for me, formative and that most students and many faculty will recognize. The story begins some years ago, just as the newly created writing program at the University of Chicago was getting under way. I taught this student in the first and third quarter of her year-long humanities common core, one of four common core sequences taken by all Chicago undergraduates. Not primarily a composition course, the humanities sequence was then the only place where new students received any significant instruction in writing.

Like many other Chicago undergraduates, this was one of those students who seem to blossom in the first year. A wonderfully bright young woman from rural Kansas, she had every success — and no significant criticism — in high school, but she found college a very different affair. Barely a month into her first quarter, she found the new difficulties of college overwhelming: "I have to go back to Kansas," she told me. "I was happy there. I got all A's there." Explaining her difficulties, she spoke of herself as another Dorothy and of the University of Chicago as a frightening Oz, where others did by magic what she did only badly and only with struggle. By the end of her first year, that was no longer so. Perhaps not the very best writer in her class, she was nevertheless more than competent, a clear A student and a happy citizen of her new Oz.

The next fall, Dorothy came to see me again, feeling betrayed. I had encouraged her to stay, had even helped her feel comfortable. And now, she again needed to flee back to Kansas. She had just gotten back her second or third essay in a social science common core class. She was upset by the grade — her second C in a class where C was the punishment grade; she was more upset by the comment that her writing was "fuzzy"; but what upset her most was that her roommate had received an A on a paper she had written in less than two hours by leafing through the assigned text, typing sentences more or less verbatim from the text, and providing a little personal filler here and there. I looked at my student's C essay. Though not up to her best work, it seemed written well enough. She had covered all the necessary points, she assured me, had even checked her paper against her roommate's. How, she asked me, how had she failed? She had taken the trouble to write what seemed to her — and to me — a well-crafted essay, and she got a C for her trouble.

Dorothy's experience is common enough, and not only among new undergraduates. Such puzzling failures occur at predictable points in a student's career — in the first years of both high school and college, but also in the first course in the major, in the first year of graduate or professional school, in the first years on the job, and even at later changes in position or profession. Though it may be more evident in freshmen, this kind of disorientation is clearly not just an experience of youth. Against Dorothy's example can stand the similar experience of a tenured professor who later found herself in law school. She reported her story during a workshop conducted for teachers of legal writing. Before going to law school, she had

earned a Ph.D. in anthropology, had been tenured at a research university, had published widely, and had gained a reputation as a good writer. But, she reported, all of the skills that she had developed as an anthropologist seemed to desert her as she entered the door of law school. Her writing, she said, was worse than it had been when she was an undergraduate. So serious and so unexpected were her difficulties, that she could only attribute them to a physiological cause: "To tell you the truth," she said, "I seriously considered having myself checked to see if I didn't have some disease that was impairing my brain functions."

This is the most striking example I know, but such experiences are common lore among law students. After successful undergraduate careers, they suddenly find themselves puzzlingly incapacitated in areas where they had always excelled. And, like Dorothy, they ask how they had failed. Their professors also have questions. "What," they ask me, "do you teach them in the colleges? Why don't you at least see to it that they can write?" Ironically, those are just the questions that the law firms ask of the law schools.

Both Dorothy and those law students have a very good question. It is a question I have had to face many times as the director of two university-wide writing programs. Can students be expected to learn and can we expect to teach writing once and for all in generic writing classes conducted by an English or rhetoric department? The answer is, I now think, clear: it cannot. If we judge writing classes in terms of their success in teaching writing in general, once and for all, then those classes are obviously failures. When I conduct writing workshops for groups of faculty from all disciplines, I make it a point to ask which of them believe that students come well-prepared to write in their classes. No one has ever raised a hand. It usually takes some doing to make them understand that the responsibility lies more with that conception of writing and writing instruction than with their writing faculty. And yet, by accepting the role of preparing students once and for all for all writing tasks, writing faculties have abetted the process by which they have been put into ghettos largely populated by underpaid part-timers and forced-labor graduate students. By adopting as their own an impossible goal and by adapting their pedagogy to that goal, writing faculties have limited their chance to succeed and so assured that they will not be taken seriously.

Critical thinking is also thought of as a "generic" skill, and I fear that I see in the growing interest in critical thinking a new group of teachers setting themselves up for the kind of disrespect and powerlessness that has descended on rhetoric and composition. But in this danger lies a great opportunity. The failure of traditional composition has opened the door to some new and exciting approaches, approaches that are reintegrating writing into the mainstream of the curriculum, that do succeed, and that are beginning to win some of the respect composition has not had for a long time. If the critical thinking movement does not make the mistake of

becoming a traditional "basic" skill, one that must be all things to all disciplines, its opportunities can be at least as great.

Before we begin to draw an analogy between writing and critical thinking too easily, however, the analogy bears closer examination. It is drawn quite explicitly in your first newsletter, as Professor Blair thinks through the relationship between writing or thinking and the disciplines. After writing of critical thinking as though it were independent of disciplines, Professor Blair adds that he does not want to

> give the impression that it is necessary in practice to teach a subject, and to infuse critical thinking, separately. Rather, it is likely that it is possible and desirable to do both at the same time. It might even be impossible to do the two separately (though I do not believe that). The above distinctions don't carry any implications about how best to infuse critical thinking. Perhaps a fitting analogy is that because teaching a child to swim and teaching him to swim the breast stroke are distinct, it does not follow that one must teach the two separately. On the other hand, the analogy should not be taken to imply that it is impossible to have a distinct general critical thinking course simultaneously with the infusion of critical thinking in courses in the various academic disciplines. A counter-analogy is that one can learn many of the basic skills and principles of clear expository writing independently of learning how to write newspaper stories, company reports, or magazine articles, in particular.

While such openness on this key question may be appropriate to an opening moment, the experience of teaching writing suggests some of the dangers in this traditional "basic skills" conception of writing and thinking.

The first mistake is embodied in the analogy between writing (or thinking) and swimming, a mistake made possible only by defining writing skill far too narrowly. To be sure, writing is a skill. But as a skill, it's not much like swimming. Writing and thinking are always *about* something: swimming is not. And that "aboutness" of writing and thinking — their essential relation to reference — makes all the difference. In cognitive psychology, in philosophy, in semiotics, and even in artificial intelligence, scholars are coming round to the view that a definitive feature of human thought and language is reference, intentionality in the technical sense. As a cognitive scientist of my acquaintance recently told me, "We will know that the lower primates who have learned to sign are really using language when we discover them musing together about their next meal — if there is no food around and they are not hungry."[2]

Because writing and thinking are always about something, they are deeply tied to our knowledge. In every area that has been investigated seriously, the evidence is clear that cognitive skills depend on knowledge. Those areas are quickly being multiplied: knowledge has proved essential to readers of all levels of skill and maturity; to problem-solvers of all sorts; to test-takers solving simple logical problems; to science students and to scientists solving both familiar and novel problems; to novice and expert political scientists; even to computers trying to understand commands or

[2]The scientist in question is the memory specialist Ulrich Neisser. For two contrary and competing arguments that share this view, see Searle (1983) and Dennett (1987).

stories in a natural language.[3] All of these have been shown to be skills that depend not only on the amount of knowledge the individual controls but also the complexity of that knowledge. Surely we need no special research to recognize that students write and think better when they know what they are writing or thinking about. And in the academic setting, knowledge is the property of, and so is defined by, the disciplines.

The second mistake in thinking about writing as a traditional basic skill lies in our conception of the basics and how they are learned and used. Notice the linear, construction metaphors we use to talk about basic skills. The job of the teacher at "earlier" levels, we say, is to help the student master the "basic" skills that would then form the "base" or "foundation" on which the student would "build" higher skills. If the foundation is "solid," the job of later teachers is to "reinforce" and "maintain" those basic skills as students solidify their grip on ever-higher levels.

The metaphors we characteristically use to describe learning are also linear, based on natural development and growth. When we develop normally, we grow "up." As we grow "up," we also "progress" left to right along a time scale. So we map growth and learning from low to high and map progress from a starting point on the left to a goal on the right. Thus, if we think learning is continuous, we envision the steady curve of a rising hill. If we think learning has stages, we see stairs, with an occasional landing on which students dally or rest, priming themselves for the continuing trek upward.

These linear metaphors further shape how we talk when we and our students fail. Any movement not along the line is regression, and regression is in this view bad and blamable. Students who cannot continue to perform at levels reached earlier are said to have moved backwards, to a lower level. They have failed to learn the bas(e)ics and have fallen, as though they had not advanced at all. If we can, we like to blame this regression on the student's previous teachers. (That's one reason the business of freshman composition is so fraught with danger.) The dreary litany of blame is all too familiar: the professions blame the professional and graduate schools; they blame the colleges; the colleges, the high schools; the high schools, the primary schools; the schools, the parents; and parents blame TV. When we can't find a teacher to blame, we brand the student a backslider who has become careless or forgetful or just plain lazy.

These metaphors come so naturally to us that they permeate not just our casual talk, but even our most sophisticated accounts of learning and

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[3]For a concise overview, see Glaser (1984); for readers (and writers), see Gibbs (1979), Spiro (1980), Voss, Vesponder, and Spilich (1980), Bower (1982), Dillon (1981); for simple logical problems, see Wason and Johnson-Laird (1972); for science problems, see Larkin et al. (1980) and Chi and Glaser (1981); for political science problems, see Voss et al. (1985); for computers, see Colomb and Turner (1988); for evidence that the importance of knowledge extends to basic reasoning processes, see Byrne (1987).

development.[4] For a variety of reasons, some of which will be clear shortly, I think we must discard such linear conceptions of learning. Instead of our metaphors of growth and construction, I prefer the equally familiar one of an "outsider" trying to "get into" a community, a metaphor that pictures the movement of a learner at first situated outside a bounded field, who then enters and so "joins" the community by acting like its members. (I might add that we must not place any one community at the center or upper right of the map, standing as an ultimate goal.) Where the stair-step model leaves the student a solitary sojourner, giving no place for a teacher (or anyone else) to stand,[5] the community model puts us in the middle of the learning process, centering on the interaction of student and teacher and measuring learning in terms of their relationship. We better understand our students' position and our role as teachers if we think of new students as novices and think of our goal to make them, relatively speaking, experts — not experts with respect to some abstract notion of knowledge absolute and simple, but experts with respect to some community of knowers, learners, and teachers.

If the linear metaphor were apt and students were sojourners on the rising hill of development, then we would have a right to expect them to arrive at our door complete with all the baggage — known as basic skills — that they obtained in earlier courses. Why not, in that case, teach all the basics once and for all at the beginning of such a journey? But if students move, not in a line, but from community to community, then it is not at all clear as they arrive which items in the baggage they have collected along the way will be suitable to their new situation. And it is even less clear that a writer struggling in a new situation is thereby cognitively deficient.[6] This, I would suggest, is the more accurate and more humane view.

The third, and most important, mistake in thinking of writing as a traditional basic skill lies in the idea that writing can be learned early, once and for all, and independent of any particular kind of writing or any particular "subject matter." One reason for holding such a view involves a logical error. It is indeed obvious, as Professor Blair points out, that one can teach swimming without teaching the breast stroke or that one can teach writing without teaching any given genre — as he has it, newspaper stories, company reports, or magazine articles, not to mention the wide range of academic genres. However, while there may be something we would call swimming that involves no particular stroke, it is hard to imagine anything that a college teacher would call writing that is writing of no discernible

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[4]The linear metaphors appear prominently in the work of those developmental psychologists taken most seriously by educators, figures such as Jean Piaget (1954, also see Inhelder and Piaget, 1958, 1964), William Perry (1970), and Lawrence Kohlberg (1984), to mention just a few. Even dissenting views, such as Bilenkey, et al. (1986) with their emphasis on the connectedness of student learning, include strong elements of the linear conception of learning.

[5]In an argument otherwise unpersuasive, Don Hirsch (1987) gives a good account of how this conception of the solitary learner finds its roots in what he calls the Romantic tradition (110-133).

[6]See Bizzell (1982, 1988), Bartholomae (1985), and Rose (1985).

genre, that is writing *simpliciter*, writing in and of itself. To teach writing is to teach genres, and to speak of genre is to speak of communities.[7]

The view of writing as a basic skill rests on other errors. One concerns the nature of the basics. Traditional composition pedagogy assumes that grammar governs only structures at the sentence level and lower. Higher-level structures, matters of cohesion and coherence, are dealt with only through a group of rules of thumb, which range from folk grammar to folklore. The fact is, however, that the grammar governing texts extends well above the level of sentence, including the largest units of text structure.[8] Since sentence grammar does vary somewhat less than text grammar, the traditional focus on sentence grammar contributes to the false impression that sentence grammar, especially that part we might call handbook grammar, represents the invariant basic skills.

Another error concerns when students are ready to learn the basics. There are indeed "principles of clear expository writing" that transcend genres, principles that abound in conventional writing guides ('make a plan and follow it,' 'write for your audience, not for yourself,' etc). There is even a grammar of text structures that transcends genres. But those principles and that grammar are so abstract and are manifested so differently genre to genre, discipline to discipline, that novice students derive little or no benefit from learning them apart from learning particular genres in particular disciplines. A grammar governs/explains all the possible manifestations of a language. However, all possible manifestations do not fall within the bounds of grammatical correctness, which is sensitive to relatively narrow, more sharply defined communities and situations. As we shall see, not only at the upper levels of text grammar but also at lower levels of handbook grammar, standards of correctness — the standards we in fact judge by — vary genre to genre, discipline to discipline.

This last point bears elaboration in some detail, for not only does it show why writing can't be taught as a traditional basic skill, it also shows what an alternative curriculum might be like. Return with me to the case of Dorothy and her failed social science papers. There she was, crying in my office because she believed the mysteries she had mastered the year before had suddenly deserted her — or worse, that she had failed them. But that was not quite Dorothy's case. She had written an essay that would have been perfectly acceptable the year before. She had kept her grip not only on the writing skills but also on the disciplinary skills I had taught her. She had produced a creditable piece of writing — which was graded a C. Her writing was "fuzzy," the comment said; she did not "cover the territory." If we assume that her professor was even marginally competent and that she did, as she said, "cover all the points" — or at least covered enough of them to do

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[7]For an early account of the role of disciplinary genres — in terms of the looser notion of an "interpretive community," see Elaine Maimon (1983).

[8]See Colomb and Williams (1986, 1987).

better than a C — then we must find the reason for that C somewhere in the difference in the disciplines.

Dorothy's case I would describe as follows. In the introductory humanities common core — the only class, remember, in which Dorothy received significant instruction in writing — her teachers helped her master a body of grammatical knowledge and skills; a body of general pragmatic knowledge about written communication; and a body of conventions specific to my discipline. When she used those skills in her introductory social science core, my disciplinary conventions and the grammar associated with them somehow prevented her social science professor from seeing that she had "covered the points." She had, in short, produced the wrong genre. Her roommate took the relevant genre to be different, what looked to Dorothy like a list of paraphrased points, lightly annotated. The roommate clearly understood something about the class that Dorothy did not.

Dorothy was, I'm afraid, right to feel betrayed. Here, she was again confronted by the mysteries of OZ, where others were privy to secrets she didn't even know existed. Was her writing fuzzy? — didn't seem so to me. Was her essay badly written? — I wouldn't have said so. But since successful communication is the test of good writing, then yes, it was badly written.

Had I betrayed her? Well, I had taught her to write in a way that satisfied my expectations, a way appropriate to my discipline. I knew that conventions vary from discipline to discipline, and I had given years to investigating the discourse grammar that governs those variations, had even taken the time to investigate the conventions in several disciplines. I had warned Dorothy and her classmates that they could not expect to write in other classes exactly as they had written for me. But everything in Dorothy's institutional situation told her otherwise. She knew she was to be taught writing exactly once in her undergraduate career — in the humanities common core. Her other professors clearly expected her to be able to use *those* writing skills in their courses. By making the mistake she did, she merely responded to the linear, basic skills model of learning that is implicit in any curriculum that relies on freshman composition or its surrogates.

Had the social science teacher betrayed Dorothy? Incidents such as this one prompted me to spend some time working with my colleagues in the social sciences on how they responded to students' papers. But I think we can understand this teacher's response when we recognize how serious was Dorothy's mistake. The conventions she failed to follow were deeply entrenched, both in his discipline and in the grammar of her text. For example, a definitive feature of the texts we ask our students to write is that they make points. This is one invariant aspect of that universal text grammar, an aspect that is transportable to most (but not all) academic and professional genres. However, what counts as a point is not invariant. What counts as a point changes from discipline to discipline — indeed teaching

students what can count as a point worth making is one of the central goals of much introductory teaching.

Generally, students do not come to college well-prepared on this score. In that humanities common core class, we spend much of the year reforming our students' notion of what counts as a point worth making in the collegiate community of humanistic study. Most students, even the better-prepared students, begin by making points that seem to their professors both too general and too thin. Dorothy's first full assignment was to compare and contrast two speeches that Thucydides had made up for his *History of the Peloponnesian War*. The speeches are supposedly given by representatives of Corcyra and Corinth, each bidding for Athens to join them in an alliance against the other. Though the topic is rich with opportunities for analysis, this is a poor assignment that invites characteristic novice responses from new students — deliberately so, in order to raise the question of points right from the start.

Most of Dorothy's colleagues, as first-year students everywhere, find it difficult to reach beyond "mere summary" to analysis. They begin with points like those that begin the following list, points that are not yet rich enough to count as points worth making.

1) The Corcyraeans' and the Corinthians' speeches are different.

2) In their speeches, the Corinthians appeal to virtue while the Corcyraeans appeal to self interest.

3) In these speeches and their different appeals, Thucydides shows how Athens made wartime decisions.

4) In these speeches and their different appeals, Thucydides shows how Athens had already begun its steady decline.

5) In these speeches and their different appeals, Thucydides lets the reader understand why Athens had already begun its steady decline.

6) In these speeches and their different appeals, the reader not only understands but also can begin to experience the beliefs and attitudes that had already started Athens on its steady decline.

The first two on the list do not count as points worth making in the collegiate community of the humanities because neither makes a judgment that is not obvious to every attentive reader (although on that score the second greatly improves the first). Students who do better learn to make points such as three or four, which are above the threshold of points worth making (although here too the second is better, because its judgment ranges over the book as a whole). These points present the kind of interpretive judgments that are expected in the humanities. Although there is no absolute rule, points worth making in the humanities tend to have the author or a surrogate for the author as the subject/agent and a verb that is

not a verb of saying.[9] Students who have already "gotten it," that is, who have begun to master the discipline, make points like five. This point introduces a third player, the reader, who is added to the mix of Thucydides and his characters. Students need significantly greater sophistication to manage a three-term judgment, even one as simple as this. Finally, the students who are destined for graduate school make points like number six, which is five elaborated with lit crit lingo.

Students in this kind of introductory course must learn what counts as a point worth making, what counts as support for a point, and why. So, Dorothy's class had spent much of that first year learning how to climb up this point ladder, how to write papers that could successfully make and support increasingly rich points. Dorothy's problem was, however, that those rules no longer obtained in her social science class. There was indeed something Dorothy's roommate understood that Dorothy and I did not.[10] She understood what counted as a point worth making in the collegiate community of inquiry in the social sciences. In the wake of this experience, I investigated the situation. Discussions with a number of professors in Chicago's social science core revealed that they expect points that do repeat what an author has said. The kind of points they require also demand a judgment on the part of the student — what the professors most often called a "response," but they are much closer to paraphrase than are the kind of interpretive points expected in the humanities. Teachers in the humanities core had spent the year weaning our students away from that practice. Is it any wonder that in the new setting many of them got it wrong?

We make no small mistake when we teach writing as though what students learn in one discipline (almost always English) can simply be carried forward to any number of different writing situations and tasks. The first lesson of this example is what I think ought to be the slogan of every effort at writing across the curriculum — or, as I prefer, writing *in* the disciplines: namely, that grammar varies from discipline to discipline. And it varies in any number of ways: Dorothy's essay failed partly because it had the wrong kind of point, but also because it failed to meet others of the professor's disciplinary grammatical expectations. These variations range through all levels of text structure. In points, we see variations at the highest levels, but the variations also extend down to the lowest: for example, the verb tense used to report what happens in another text.[11]

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[9]The disciplinary patterns I am discussing here are by no means monolithic. The humanities common core at the University of Chicago is dominated by language departments. As a result, even though it is conceived as a general humanities course, the standards enforced in the course tend to be weighted toward the practice of language departments. What I say here about points would not be true of the small variant of the course offered exclusively by the philosophy department, whose standards are quite different.

[10]A few years after my experience with Dorothy, Lester Faigley and Kristine Hansen (1985) published a similar anecdotal account of the writing difficulties faced by advanced social science students who have not yet mastered their discipline. They add a valuable account of the experience of upper-level students (and of the ignorance of their teachers), but do not address the generic and grammatical considerations at the heart of this question.

[11]Some disciplines, including most in the humanities, report what happens in another text in the present tense; others, including several in the social sciences, use the past tense. Others use both: students in biology are

When students move from discipline to discipline, they find crucial, usually unpredictable changes not only in what counts as *good* writing but in what counts as writing in the first place. These are the kinds of variation that led my social science colleague to find Dorothy's essay vaguely unintelligible, and so fatally "fuzzy."

Another lesson in this example concerns how we think about students like Dorothy. Dorothy's social science teacher responded in terms of a linear, developmental conception of the learning process, and he judged her in accord with that conception. He did not brand her a backslider, but he did make her feel incompetent because she did not know something she had never been told. The famous common core curriculum of the University of Chicago, one reason Dorothy elected to come to Chicago, at that time made sense in its writing instruction only if this linear, developmental model were true. Dorothy and her social science professor acted in good faith as though writing, like walking or swimming, were the kind of skill that could be learned early, and once and for all — preferably in the primary grades, but at least by the end of freshman composition, a.k.a., the humanities common core. Dorothy's social science professor believed that he could fairly hold her accountable already to be able to write in a way that satisfied him — *and so did Dorothy*. That's why his C's were for her so devastating.

My story of Dorothy's experience looks at this phenomenon chiefly from the outside. For an inside look at how disciplinary considerations complicate our judgments of students' writing and thinking, we can turn to a second set of examples supplied by the chair of the physics department in a large, urban university with a program in writing across the curriculum. He offered a group of lab reports as representative of the range of his students' writing. The following example (A) had the comment, "Wonderful," and was designated to me as "More than could be expected."

- A -

I. Objectives

To measure the current in a photocell as a function of the wavelength of light illuminating the photocathode, and to show that the maximum energy of the photoelectrons corresponds to the frequency of light rather than its intensity, thereby verifying Planck's photon hypothesis. A mercury lamp will be used as a source of ultraviolet radiation, in conjunction with a McPherson scanning monochromator.

II. Background

In 1886-7 Hertz performed experiments that validated Maxwell's electromagnetic theory of light. It is remarkable that while in the process of confirming the supreme triumph of classical wave theory, Hertz also stumbled onto the effect which eventually helped launch the development of 20th century physics.

In his experiments, Hertz found . . . . [5 pages] One can scarce believe that [Millikan] took ten years to refine his techniques, using ingenuity and

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encouraged to use the present tense to report well-established findings (since, as established findings, they are part of present and enduring knowledge) and to use the past to report their own and other findings still open to question.

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determination coupled with tenacity to surmount what one person has referred to as the innate perversity of inanimate objects. He serves as a model of experimental meticulousness and thorough-going precision.

As a lab report, this paper would seem to leave much to be desired. It lacks the "Equipment and Techniques" section that the students were told to include. In fact, it lacks any mention of the experiment itself. (Science teachers tell me that this almost certainly means that the student did not attend the lab.) However, its prose is about as sophisticated and successfully complex as undergraduates ever achieve (even integrating equations into the prose with idiomatic ease), and it displays a remarkable understanding of the physics involved.

The next two examples represent the middle and bottom of the range of writing for that professor. B carried no comment for the student, and was designated for me as "Adequate." C had the comment, "Not well-written. More information was available." It was designated "Unacceptable."

- B -

First a particular frequency of mercury light is selected with a McPherson scanning monochromator. It is allowed to shine on the potassium and liberate electrons. The electrons are collected by a platinum ring. Next, a variable negative voltage is applied to the platinum ring and the value of the voltage needed to stop current flow in the ckt below is noted. [Diagram]

The kinetic energy that the electron has is

$$KE = hu - ed$$

and in the above set-up, $KE = eV_0$, so that

$$eV_0 = hu - ed$$

By varying the frequency of light, a linear relationship between slopping potential and frequency is determined. The slope of this line is . . . [1 page]

- C -

I. Objectives

To become familiar with the use of surface-barrier detectors for charged-particle spectroscopy, and to study some of the properties of alpha-emitting isotopes.

II. Equipment and Techniques

In this experiment a solid-state barrier detector was used. Solid-state detectors take advantage of the charged particle's interaction with the electrons in the intrinsic semi-conductor properties of the Lithium crystal. They are called surface barrier detectors because to the n-type crystal, a thin p-type surface is added, thus creating a p-n junction. They have a very thin layer of gold on the face of the detector to protect the[m] from decomposition from the air and from the moisture in the air. A reversed-bias is added to the detector to the sensitive detector depth, by reducing the depletion zone.

The detector was set up . . . [1 page]

At first, I could not discern the distinction that the professor found in B and C, and I still see very little difference at the paragraph level and below. Certainly student C does not cry out for help from a writing tutor any more

than does student B. And yet, the writing of B is adequate and of C, unacceptable.

Notice how complex (and flexible) are the judgments of this professor. Student B has failed entirely to follow the external format of the lab report genre. He has no statement of objectives, only an extended, unlabeled account of the experiment itself. Nevertheless, this report was judged adequate. Even without the appropriate format, Student B has captured the sense of the genre, the voice of the discipline, sufficiently well for the professor to place him in the middle range. Student C, on the other hand, has the right parts and has prose not appreciably less competent than that of Student B. Yet C's work is unacceptable for its *writing*. Something in the report led the professor to complain that "More information was available." But that judgment can hardly explain the additional judgment, conveyed to the student, that C is "Not well-written."

The one marked distinction that sets C aside is found in the statement of objectives. Compare C's "Objectives" section with that of A:

> I. Objectives
>
> To measure the current in a photocell as a function of the wavelength of light illuminating the photocathode, and to show that the maximum energy of the photoelectrons corresponds to the frequency of light rather than its intensity, thereby verifying Planck's photon hypothesis. A mercury lamp will be used as a source of ultraviolet radiation, in conjunction with a McPherson scanning monochromator.

> I. Objectives
>
> To become familiar with the use of surface-barrier detectors for charged-particle spectroscopy, and to study some of the properties of alpha-emitting isotopes.

Obviously, C has missed the boat on this one — although C's statement, taken literally, is the more accurate of the two. Most conventional academic assignments are built on a fiction. Students pretend to be informing someone, to be actually communicating, when in fact they have little hope or intention of informing the actual reader (their professor). Instead, under the guise of informing, students perform a different rhetorical transaction: they display their knowledge for the professor's approval. In most disciplines, including physics, students are expected to keep their texts within the bounds of that fiction. Even though physics students do not perform genuine experiments but re-run experiments whose results are not in doubt, their lab reports must pretend to be the real thing. As a result, the objectives statements are required to have verbs of testing (to measure, to show, to evaluate, to verify), and the reports are required to pretend to have something genuinely at stake in the experiment. Hence Student A's pretense that he is "verifying Planck's photon hypothesis." (To see the fiction in this, we need only ask what would happen if every student in a given lab produced results that did not verify Planck. How much danger does the hypothesis really run?)

Student C, on the other hand, has failed to preserve the fiction. Why, he asks himself, am I performing this experiment? Obviously, to learn how to use the equipment and perform experiments. So he states as much in his "Objectives," which is then literally true. And even though he knows enough to preserve the appropriate syntactic form (agentless infinitives), he misses the disciplinary, generic convention in a way that proves definitive for his professor. Where the professor was willing to forgive or overlook problems in B, in C he is not. Since C is so obviously not "getting it," his problems seem signs of far more serious troubles.

My point is not to second-guess the professor, but to show how complex are our judgments of student writing. This physics professor is a good teacher, serious about teaching writing and willing to give his students the time it takes to teach writing as he teaches physics. His judgment that report C was badly written is not all that surprising. If we take into account the whole of its text grammar, then the report has fundamental errors. And those errors make other errors seem more glaring: readers are more likely to notice lower-level writing problems when their comprehension is slowed by difficulties with content or with higher-levels of text structure.

How serious was C's failure? Serious enough to make his writing unacceptable? Apart from knowing the student and the discipline and knowing the goals for the assignment and the class, it is impossible to say. Some would say that student C was guilty only of a minor, understandable error. That might be so for a novice student in an introductory class. Others would say that student C was guilty of a failure of basic studentcraft, to be foolish enough not to engage in so common a pretense. That might be so were it not that in some scientific disciplines, computer science for example, students are encouraged to state Objectives using verbs of learning of the sort C used here.[12]

We cannot underestimate how unpredictable are these variations and how subtle are their cues. For while the novice is committed to mastering the knowledge that the disciplinary community thinks is important, the novice is equally committed acquiring the *ways* of thinking and speaking that characterize that community, the tone of voice that identifies members to one another, the required silences whose violation instantly brands the outsider. However true it is that Shakespeare is a famous writer who wrote many plays, my novice students of literature don't get to say so, either in writing or in speech — and if that surprises you, maybe you can begin to appreciate how the unpredictability and subtlety can puzzle a student. You might also begin to see the force of the other side of this issue. If we find it impossible to teach our students and judge their performance apart from these kinds of disciplinary considerations, to what degree and in what

[12]There are many variations. At my current institution, physics and chemistry strongly prefer agentless infinitives with verbs of testing and measuring. Biology allows either agentless or first-person constructions with verbs of observing. Electrical engineering prefers agentless constructions with verbs either of measuring or learning. Computer science strongly prefers first-person constructions with verbs of learning.

circumstances is it reasonable to hold students up to the full force of such disciplinary standards — for either punishment or reward.

I recognize that practitioners in some disciplines are reluctant to trust the kind of purely interpretive procedures I have used in analyzing these physics reports. The next set of samples will demonstrate perhaps even greater disciplinary effects, and for these samples I have, albeit informally, collected a substantial number of independent responses. I have the samples courtesy of a colleague. One day he pulled me into his office as I was walking by, and handed me the paper he had been grading. He asked me what he thought was a question about the paper, but was in fact a question about himself, about how his disciplinary conventions got their hold on him. "Why is it," he asked, "that I know this paper has to get an A even though I've read only the first paragraph." The course was an upper-level course in seventeenth-century poetry; the assignment was to produce a three-page reading of a poem not yet discussed in class. The opening paragraph read,

> Donne's "A Lecture upon the Shadow" gently admonishes his lover to maintain the honesty and integrity implicit in their relationship lest they should come to deceive themselves as they had the lovers in their separate pasts. The poem is in two sections, each tightly defined by rhyme scheme and line length (see attached). The first is primarily a metaphoric history of their past relationships, in which the shadow speaks for both the insubstantial, though haunting quality of the past and their deliberate deception of previous lovers. Donne then tells us that past behavior no longer applies, and thereby implies his current relationship is everything the previous ones were not: mature; complete, emotionally honest. With an eye toward preserving this newfound purity, the second section moves into the future and prescribes against the disingenuousness of the first.
>
> The opening couplet of the first section establishes Donne's seriousness...

(If your discipline is not literary criticism and my colleague's judgment seems incomprehensible to you, then you are feeling something of what these disciplinary variations do to students.)

My first answer was akin to the explanation I gave above for the best of the lab reports. This prose is quite accomplished for an undergraduate. While it is not flawless, it is nevertheless more sophisticated than undergraduates usually achieve. The paragraph has a complex structure that is yet orderly and unobtrusive. Its sentences are of varied length, and the longer ones have different kinds of syntactic complexity. Only accomplished writers demonstrate the patience and the syntactic dexterity of the post-posed adjectives in the penultimate sentence. She even knows enough to make the three post-posed adjectives move from short to long, to make the first two identical in meter, and to give an iambic pattern to the whole: "mature, complete, emotionally honest." (I refrained then from noting that the items in the list are dominated by an initial "m" sound and a final "t.") This explanation was immediately rejected. My colleague did not think I had captured his sense of what he felt, and he professed to have other students who wrote prose at least as sophisticated but whose papers had not affected him in the same way.

The answer does, I think, lie partly in the sophistication of the prose, but it lies even more in a series of disciplinary cues. I have now tested this passage informally on hundreds of teachers of literature. Asked to predict what grade they would give to a paper that begins with this paragraph, all but a well-defined minority (of which more in a moment) agree with my colleague: this paper has to get an A. I have also tested the following paragraph on a smaller number of teachers:

> "Come with me and be my love . . . ." What lover of poetry has not been thrilled by words like these? Love has always been one of the most durable and exciting appeals that poetry makes on its readers. Love is certainly one of the most important sources of appeal in the poetry of John Donne, although sometimes the love in question is love of God. Unlike other love poets, however, John Donne tries to use argument to make his lovers love him. Donne's "A Lecture upon the Shadow" is a poem that makes an argument. In this poem, Donne gently admonishes his lover to maintain the honesty and integrity implicit in their relationship lest they should come to deceive themselves as they had the lovers in their separate pasts. The poem has two sections. Each section has the same rhyme scheme and stanza structure. In each section, Donne has one long stanza (aabbcddceee) with varied line length (in syllables, the lines run 6, 10, 7, 7, 10, 10, 6, 10, 8, 8, 10) and a closing couplet. The first section is a primarily a history of their past relationships told in metaphors. In this section the shadow speaks for both the insubstantial, though haunting quality of the past and their deliberate deception of previous lovers. Donne then tells us that past behavior no longer applies. Thereby he implies his current relationship is everything the previous ones were not: mature; complete; emotionally honest. With an eye toward preserving this newfound purity, the second section moves into the future. In it Donne prescribes against the disingenuousness of the first section.
>
> The opening couplet of the first section shows that Donne is serious...

Asked to predict the grade of this paper, teachers agree less, but none find it a clear A paper and some rate it a D or even F.

The differences in these two passages demonstrate what created the sense of compulsion that my colleague felt about the original passage. These differences isloate a series of grammatical and other textual cues of the student's mastery of the discipline. Every sentence in the original is included in the revision (although some complex sentences are made simpler). So student B knows everything about Donne and his poem that student A did. But student B does not know how to present that knowledge in accord with the appropriate disciplinary conventions.

One such convention is found in the grammar of introductions. A major grammatical function of introductions is to put on the table those concepts which are to serve as nodal points in the structure of information that will form a basis of the text's coherence.[13] Those concepts, in turn, help to create an image of the writer and of a possible reader. In academic writing, readers use that opening set of concepts to gauge the degree of specialized knowledge that a text will demand of its readers: too much for the reader,

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[13]Coherence is, of course, not a grammatical feature but a feature of our response to texts. Texts are coherent when a given reader is able to construct from it a coherent understanding. There are, however, grammatical features that contribute to readers' coherent understandings. One way to think of those features is as instructions to the reader for finding coherence.

and the text will seem (and so will be) unintelligible: too little, and the text will seem uninformative. Also relevant to this judgment is the speed with which those concepts are announced, especially the kind of information that is presented in the first sentence or two. For example, the engineer who made the following two sentences the whole of his introduction offers an image of himself and his reader that excludes all but a few specialists from entering into a transaction with the text:

> Introduction
>
> Fluid-film forces in squeeze-film dampers (SFD) have nearly been always obtained from the Reynolds equation of classical lubrication theory. However, the increase and size of rotating machinery and the use of light viscosity oils have brought the need to include fluid inertia effects in the analysis and design of SFDs.

On the other hand, the engineer who wrote this slower introduction offers an image of a more expansive writer and readership:

> Introduction
>
> One of the more promising methods of protecting downstream migrating juvenile fish at hydroelectric power developments is diversion by screening in the turbine intakes. The method consists of suspending a screen in the intake water passage-way to direct the fish toward and into a gate well for subsequent collection and release downstream of the dam. . . . . [80 words]
>
> Since the efficiency of the fish screens is determined by the interaction of the fish behavior and the hydraulic flow conditions, a new screen design can be evaluated to a certain extent by determining the hydraulic performance of the screens. . . . [40 words] The study resulted in a better understanding of the hydraulic features of the technique, which can be a guide for future designs.

Returning to the Donne papers, we can see that in the original the student begins rather quickly: "Donne's 'A Lecture upon the Shadow' gently admonishes his lover to maintain the honesty and integrity implicit in their relationship lest they should come to deceive themselves as they had the lovers in their separate pasts." Because it is first, this sentence conveys a great deal of information. Not only does it offer a quick reading of the central theme of the poem, but it also presupposes significant knowledge of Donne's poetry, of metaphysical poetry in general, even of some central strains in the history of love poetry. This introduction knows a lot that it does not say, and so projects an image of the transaction between reader and writer that makes them more peers than student and teacher. Compare how long it takes the revised version to get to the same point, how much more information the revised version thinks it must put on the table explicitly:

> "Come with me and be my love . . . ." What lover of poetry has not been thrilled by words like these? Love has always been one of the most durable and exciting appeals that poetry makes on its readers. Love is certainly one of the most important sources of appeal in the poetry of John Donne, although sometimes the love in question is love of God. Unlike other love poets, however, John Donne tries to use argument to make his lovers love him. Donne's "A Lecture upon the Shadow" is a poem that makes an argument. In this poem, Donne gently admonishes his lover to maintain the honesty and integrity implicit in their relationship lest they should come to deceive themselves as they had the lovers in their separate pasts.

If the original first sentence confines itself to speaking to the community of literary critics, what community does the revised first sentence address? — certainly a rather larger community, one that would include my young daughters, for example, and that does not bespeak any special disciplinary mastery. Many of the teachers on whom I have tested this passage have found it hard to get beyond these first few lines. Any student who could write this, they rightly judge, cannot have "gotten it."

The two passages have other corresponding differences. Whenever I recognized a strong disciplinary cue in the original, I changed it in the revision. One more example will suffice. A definitive feature of the apprentice genre of this paper (the brief close reading) is that the paper must offer an interpretation of the poem and that interpretation must be grounded in a prior, but largely unspoken formal analysis of the poem. Any interpretation that ignores the formal structures of the poem will be suspect, and an interpretation that runs counter to the formal structure will have to offer some compelling explanation for doing so. Students who have only just begun to understand the genre recognize the necessity for the formal analysis, but find themselves compelled to instantiate that analysis in their papers. Thus they speak the analysis which should be unspoken, and never quite get around to any substantial interpretation. (This is a relatively advanced version of the familiar pattern of novice papers that are more summary than analysis.)

This student has produced a perfect apprentice response to this requirement of the genre: "The poem is in two sections, each tightly defined by rhyme scheme and line length (see attached)." She recognizes the necessity of the formal analysis and the necessity that it be unspoken, but she does not trust herself to show or her professor to recognize that she has in fact met the requirement. So she includes as an appendix the pages of analysis that a student less versed in the discipline would have stuffed into the paper itself. The revised version, on the other hand, converts this apprentice gesture into a novice gesture by spelling out the formal analysis in the crudest possible terms: "In each section, Donne has one long stanza (aabbcddceee) with varied line length (in syllables, the lines run 6, 10, 7, 7, 10, 10, 6, 10, 8, 8, 10) and a closing couplet." Many of those teachers who got past the opening sentences found themselves stymied by this. A student who could write this could not, they felt sure, write a paper of any quality.

What about that minority of respondents who did not like what they saw in the original? Their response further confirms the main point, that our judgments of writing and thinking are tied to these kinds of subtle disciplinary cues. The minority view finds the original lacking precisely because it seems to have so thoroughly mastered the discipline. Its disciplinary ease seems to them a sign of the BS artist, the student who is not thinking but only going through the motions. This is, notice, a difference not so much in judging the character of the paper as in deciding how to deal with students who have already become socialized into the

discipline. There is not, for instance, a corresponding minority who especially like the revised version. There is, however, a smaller minority who praise the revised version when it is further revised to include crude and incorrect syntax.[14] Taking the cruder prose as a sign of the student's struggle with the material, these teachers are more likely to notice how much of the original's understanding of the poem has been preserved in the revision. Though they do not predict A's, this group sees the crude revision as a sign of a student who is beginning to learn, beginning to get it.

My colleague who assigned the paper agreed, at least in part, with the minority view. When he showed me the original paper, he had already written two comments in the margin. The first, about halfway down the first paragraph read, "Good, though I'm not so sure about the second part." The second, at the end of the first paragraph read, "NO! — you are mapping 'Good Morrow' onto 'Lecture' too much." My colleague had recognized that this student was doing what successful students in literature classes learn to do fairly early in the game. She had lifted the abstract structure of the professor's reading of one Donne poem and placed it over the new poem, changing only the necessary details. Learning to do this is a part of what it means to learn to be a literary critic. (In cynical moments, I suspect that many of the articles published in my discipline are only more sophisticated versions of the same procedure.) For my colleague, who knew the student, this was a sign of that student's success. For some others, who saw only the paper, it smelled of BS. This is less a difference in their judgment of the paper than it is a difference in their sense of the student.

The chief lesson that I take from these examples is this: our judgments about what counts as good writing and thinking are complex, and deeply tied to our circumstances. We do not judge students' performance in terms of knowledge in general, or writing in general, or thinking in general. Our behavior as judges shows that we know perfectly well that knowledge, writing, and thinking are socially constructed — in the academic situation, socially constructed by disciplines. By the same token, students' failures to produce good writing are equally complex, and deeply tied to their circumstances. Since what counts as good writing changes as disciplines change, when we ask students to write in an alien discipline, we put them

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[14]"Come with me and be my love . . . ." What lover of poetry has not been thrilled by words like these? Love has always been one of the most long-lasting and exciting appeals that poetry makes on its readers. Love is one of the most appealing aspects of the poems of John Donne, although sometimes he writes about God's love rather than a woman's love. Unlike other poets who write about love, however, John Donne tries to use argument to make his lovers love him. Donne's "A Lecture upon the Shadow" is a poem that is an argument. In this poem, Donne gently admonishes his lover. He tells her to keep their relationship honest so that they won't deceive themselves like they deceived the lovers in their separate pasts. The poem has two sections. Each section has the same rhyme scheme and stanza structure. In each section, Donne has one long stanza (aabbccddeeee) with lines of different lengths (in syllables, the lines run 6,10,7,7,10,10,6,10,8,8,10) and a closing couplet. The first section is primarily the history of their past relationships, using lots of metaphors. In this section the shadow symbolizes the insubstantial, though haunting quality of the past and the way they have deliberately deceived previous lovers. Donne then tells us that past behavior no longer applies. Thereby he implies his current relationship is mature, complete, and emotionally honest in a way that the previous ones were not. Looking to preserve this newfound purity, the second section moves into the future. In it Donne warns his lover against the dishonesty of the first section.

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in a situation where they are unlikely to know what will count as a successful performance. And when we ask them to write in no discipline at all (as traditional composition is wont to do), we put them in an even worse situation, where even we have a hard time knowing what counts as success. Moreover — and this issue I have not yet raised — even when students are socialized into a discipline and know how to perform successfully, their grip on so-called basic skills predictably deteriorates in the face of the cognitive stress of learning. The harder a student is thinking, the more likely her writing will escape her control.

To further complicate matters, when we mark up students' essays, even our attempts to be helpful tend to mystify the process of learning. None of us is likely to have ready-to-hand a simple, systematic way to talk about our disciplinary conventions. In fact, most of us are unlikely even to recognize our disciplinary conventions as conventions. So long have we thought and written in them, that we find it hard not to think of our own disciplinary practice as natural, as what writing and thinking in general are really like. So in responding to students, it is rare that we explicitly address those conventions at all. If we do, we typically resort to vague impressionism. Thus, the social science teacher who *felt* the inadequacy of Dorothy's essay would only say that her writing was fuzzy. No doubt "fuzzy" is just how it felt — though not nearly as fuzzy or as baffling as that comment was to the student. On the other hand, many of us do know how to talk about handbook grammar, especially sentence grammar, punctuation, and spelling. There, we do have a ready-to-hand and somewhat systematic vocabulary. So our marginal comments about writing are far more likely to call our students' attention to those supposed basics than to other matters, thereby misleading students about what really counts for us. Yet, when push comes to shove, our judgments are grounded in those other matters, in a body of disciplinary genres that are not widely shared among disciplines, that by and large we do not teach explicitly, and that by and large we do not ourselves consciously attend to. They fall into that part of our expert knowledge that we convey more by example than by precept. They are what makes college so often seem like Oz.

My own response to this lesson has led me to focus increasingly on my role as a guide to Oz. I now take it that among the central tasks of the college teacher is to demystify for students not only the disciplines but also the process of becoming socialized into them. Since students stand in many different relations to any given discipline, this demystification takes many different forms. It requires of us some hard decisions about how we want to stand in relation to our disciplines. When, if ever, is it reasonable to hold students to the full panoply of disciplinary conventions? If we decide that it is sometimes unreasonable to do so, then we are obliged to begin to investigate those conventions in order to decide which are constitutive of our discipline, and so worth holding students to, and which are only accidental. We are also obliged to begin to develop procedures for teaching

our disciplines more explicitly — perhaps by formulating explicit principles or perhaps by devising more pointed versions of teaching by exemplification.

I offer this program, if it is coherent enough to be called so, chiefly as an advocate of students. I have not addressed the question of how it might affect us not as teachers but as practitioners. Some, seeing any talk of disciplines as an apology for the status quo, have argued that the better response is to reform the academy and to break the stranglehold that disciplines have on knowledge. However, in order significantly to alter the experience of students, this proposal would have to eliminate disciplines, not merely reshuffle or restructure them. Since I cannot imagine knowledge that is not socially constructed, I wonder what it might mean to break the stranglehold on knowledge, not of disciplines — that will change only labels — but of any and all communities of knowers. Others have suggested that pedagogy, rather than perpetuate the disciplines, might be the place to begin a reformation. I worry about teachers who try to reform their professional community by refusing to help students participate in it. And I do not long for the days past when the good questions were few and eternal and when an educated man knew all that was worth knowing. The diversity of our disciplines may be chaotic and hard on students (as it is on us), but as one whose business it is to move about among the disciplines, I find that diversity the life-blood of modern intellectual life. Better, I think, to break the stranglehold of our own ignorance about the nature of our disciplines and to demystify and so open up the path to joining or at least to understanding them.

My program, as general as it is, does not translate very directly into a program for teaching writing. Writing is not a discipline in the way that literary criticism or physics are. Linguistics is, and composition studies might be (though I have my doubts). But I know of no one who thinks of teaching writing as teaching students to write like a linguist or to write in the genres found in the composition journals. A good writing program is a program in service of the many different kinds of writing that students do in the disciplines. Accordingly, the consequences for writing speak chiefly to those who wish to teach writing in the disciplines:

First, novice students (i.e., most general education students) need as much explicit instruction as we can manage on what it means to write in our discipline. They need models; they need to hear us talk about what is distinctively disciplinary in the models; they need to practice the "voice" of the discipline — all this before they can be expected to produce anything considered a final product.

Second, even with the best preparation, most students will not reach anything like a fully socialized voice. In responding to their performances, we have to decide which of our disciplinary conventions are constitutive of thinking in our discipline and which are not. And we should approach that decision with suspicion: most of us are too willing to find our customary

procedures natural and inevitable. We ought to be prepared to judge students chiefly in terms of what really counts most for us.

Third, students who do become socialized into a discipline need to be pushed toward the meta-cognitive stance we think of as characterizing critical thinking. Socialized students need to learn to stand back from the disciplinary conventions they have mastered in order to see them in light of a larger story. In practice, this means learning to communicate their newly developed expertise to those who do not share it, learning to speak out of rather than exclusively into their discipline. This may be the most difficult, and socially the most valuable of all writing skills.

Fourth, once students have been socialized into one or more disciplines, they have the experience they need to understand and make use of explicit instruction in the abstract grammar that governs the texts they have learned to produce. It is at this point that students can usefully carry into a new discipline these basic skills. It is at this point that they are ready to become the contemporary embodiment of the liberal arts ideal, an expert at being a novice.

While my suggestions are couched in terms of writing, I see many ways in which they might be pertinent to a program in critical thinking. By now, I think, the analogy between writing and thinking has been at least partially earned. You will note that by concentrating on such higher levels of grammatical structure as points, I have concentrated on examples where the distinction between writing skills and thinking skills is at best a fine one, and disappears in argumentative essays. In an argumentative essay, the grammatical point and the argumentative claim or conclusion will be identical, although the grammatical concept of a point is the more encompassing. (I use here the Toulmin (1964) scheme much favored in the critical thinking and informal logic movements.) So the difficulty in knowing what counts as a point worth making will be the difficulty in knowing what counts as a claim worth defending. So too for knowing what counts as support for a point or data for a claim. Even the difficulty in knowing what not to say finds its counterpart in knowing when a warrant must be produced and when it can be simply assumed.

If the students' difficulties in writing and thinking are so much the same, then the experience of the writing community may be relevant to critical thinking. But I encourage you to resist the temptation to behave as a novice and rush to an answer. It was a great liberating moment for me when I decided that I had to jettison traditional composition practices entirely and rethink the very idea of writing instruction. I learned more in those next few years than I had in all my training put together. You face such a moment, and I hope you can benefit from my experience. But I hope too that you take it, insofar as you do, very critically.

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